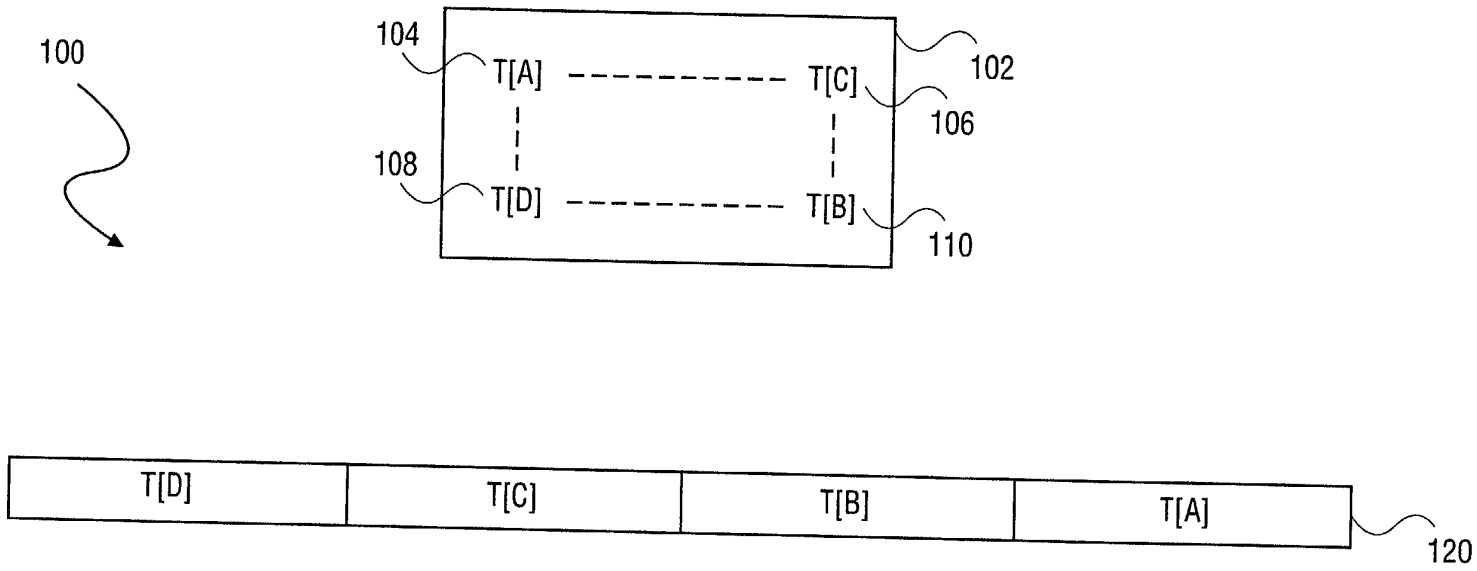
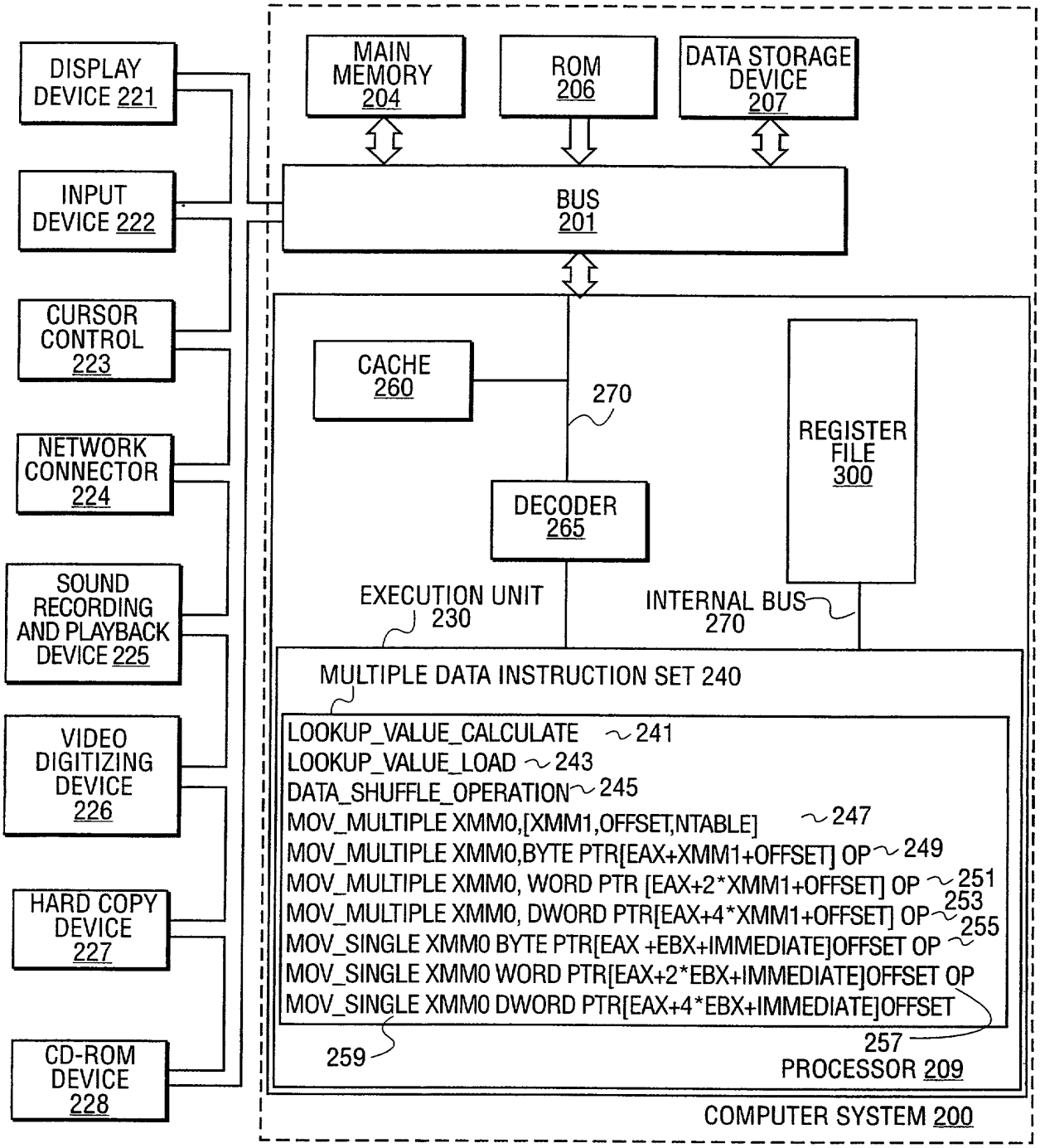


FIG. 1


DISPLAY DEVICE 221
INPUT DEVICE 222
CURSOR CONTROL 223
NETWORK CONNECTOR 224
SOUND RECORDING AND PLAYBACK DEVICE 225
VIDEO DIGITIZING DEVICE 226
HARD COPY DEVICE 227
CD-ROM DEVICE 228
MAIN MEMORY 204
ROM 206
DATA STORAGE DEVICE 207
BUS 201
CACHE 260
270
REGISTER FILE 300
DECODER 265
EXECUTION UNIT 230
INTERNAL BUS 270
MULTIPLE DATA INSTRUCTION SET 240
LOOKUP_VALUE_CALCULATE 241
LOOKUP_VALUE_LOAD 243
DATA_SHUFFLE_OPERATION 245
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MOV_MULTIPLE XMM0,BYTE PTR[EAX+XMM1+OFFSET] OP 249
MOV_MULTIPLE XMM0, WORD PTR [EAX+2*XMM1+OFFSET] OP 251
MOV_MULTIPLE XMM0, DWORD PTR[EAX+4*XMM1+OFFSET] OP 253
MOV_SINGLE XMM0 BYTE PTR[EAX +EBX+IMMEDIATE]OFFSET OP 255
MOV_SINGLE XMM0 WORD PTR[EAX+2*EBX+IMMEDIATE]OFFSET OP
MOV_SINGLE XMM0 DWORD PTR[EAX+4*EBX+IMMEDIATE]OFFSET
259
257
PROCESSOR 209
COMPUTER SYSTEM 200

FIG. 2

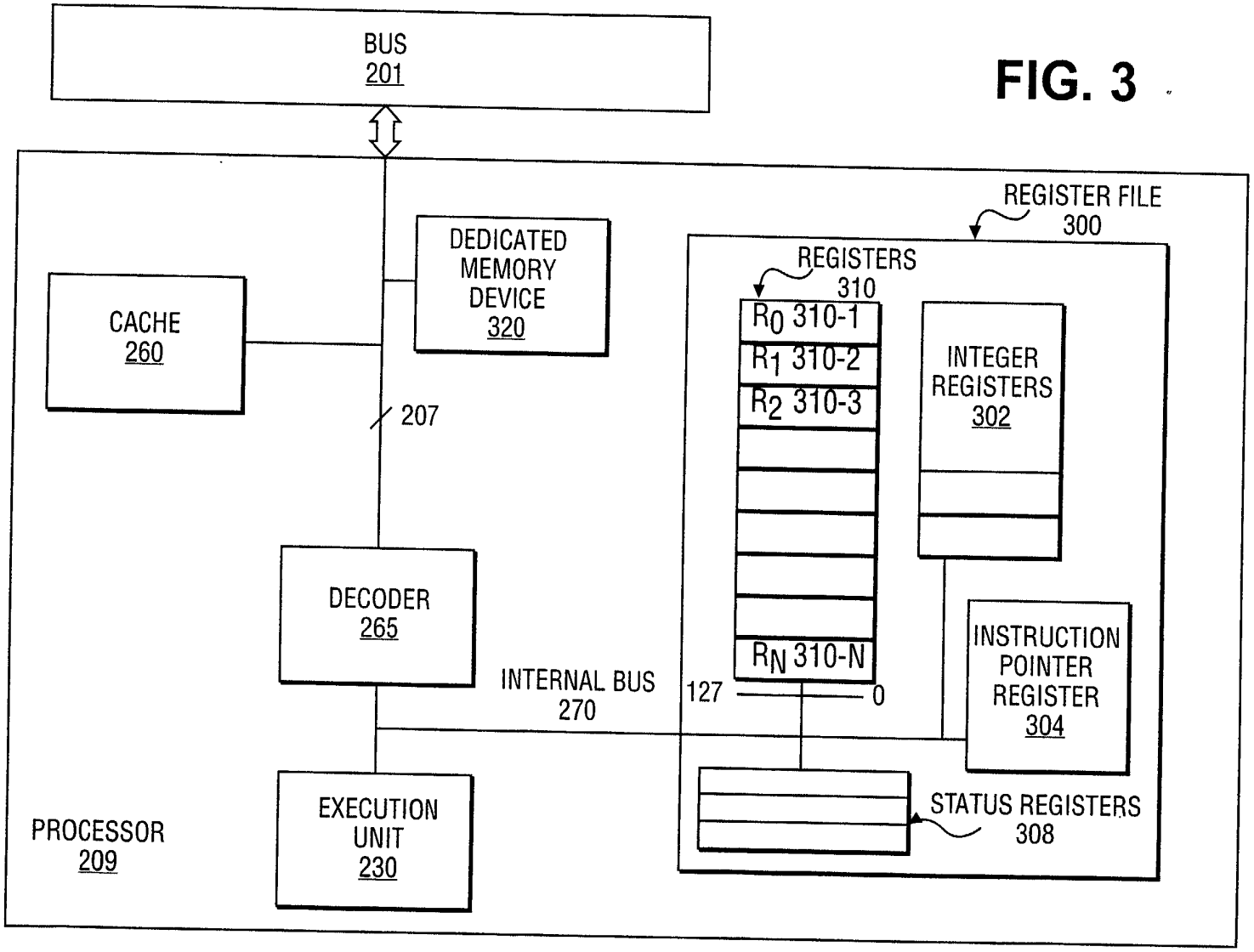

FIG. 3

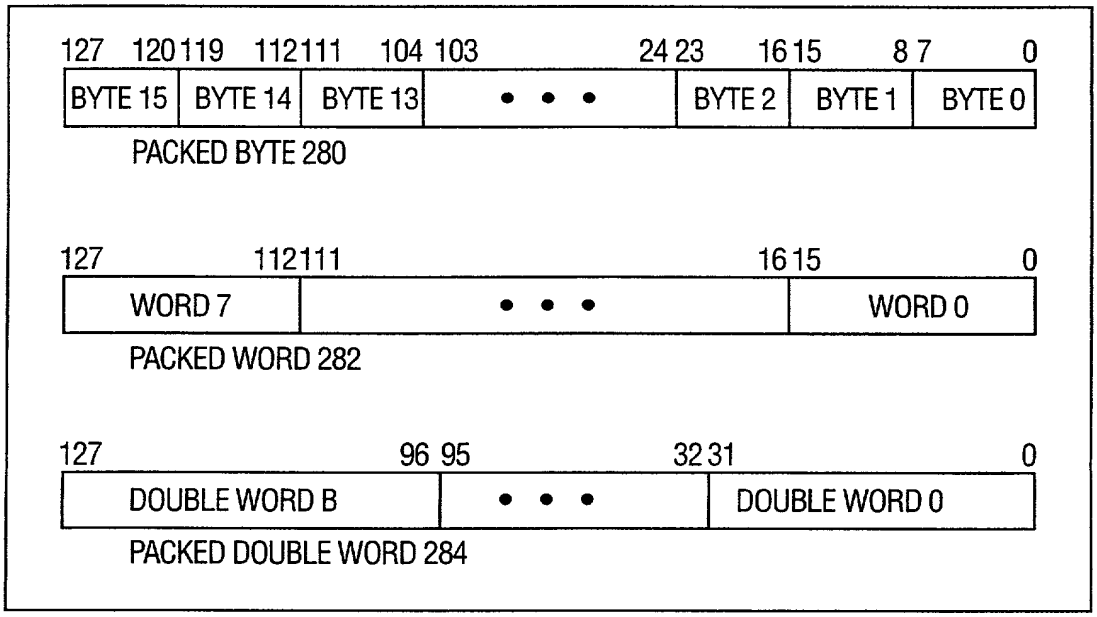
127 120 119 112 111 104 103 24 23 16 15 8 7 0
BYTE 15
BYTE 14
BYTE 13
BYTE 2
BYTE 1
BYTE 0
PACKED BYTE 280
127 112 111 16 15 0
WORD 7
WORD 0
PACKED WORD 282
127 96 95 32 31 0
DOUBLE WORD B
DOUBLE WORD 0
PACKED DOUBLE WORD 284

FIG. 4

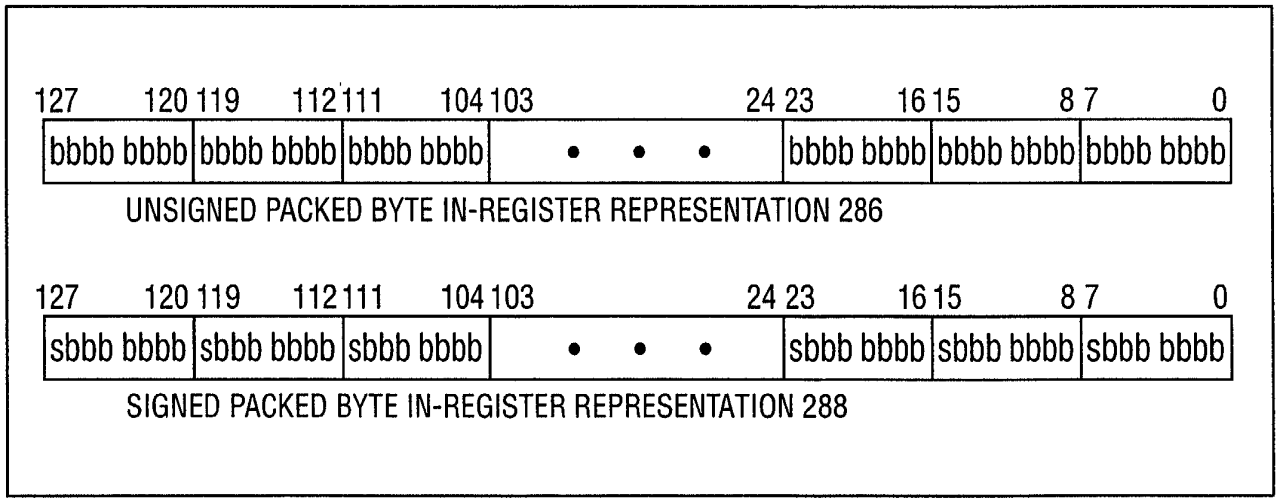

FIG. 5A

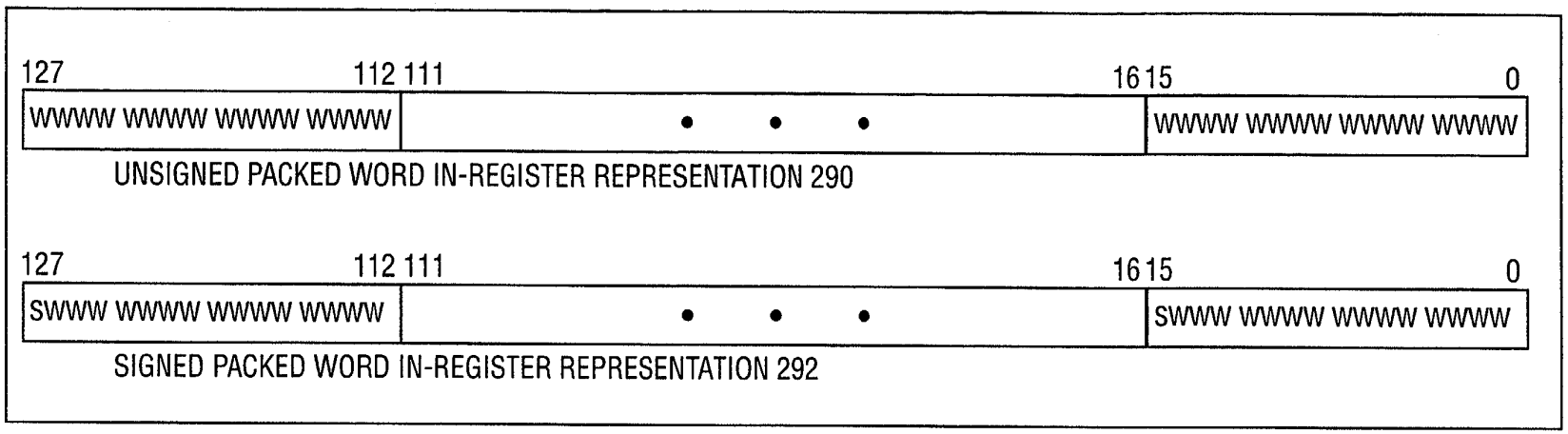

FIG. 5B

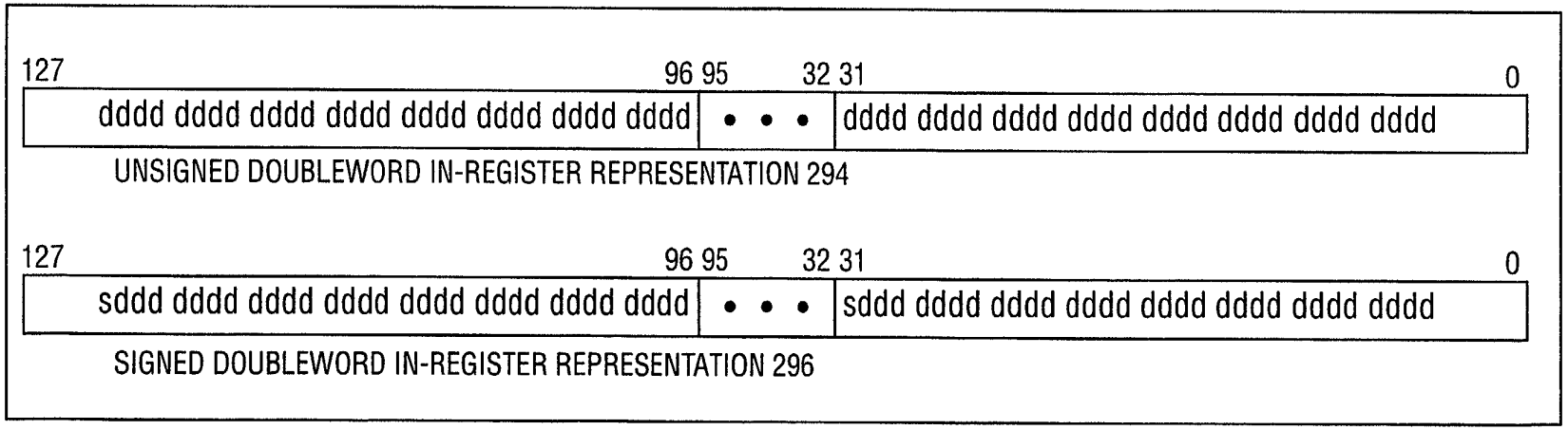

FIG. 5C

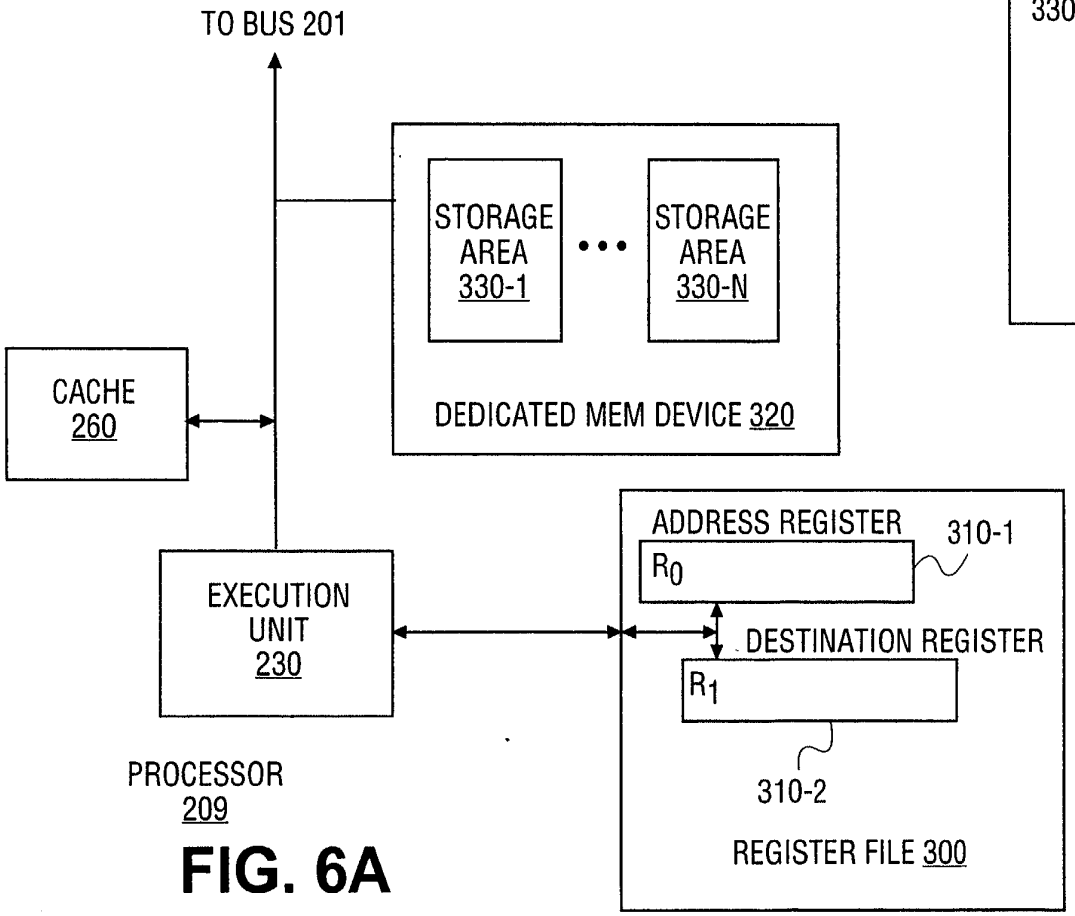

FIG. 6A

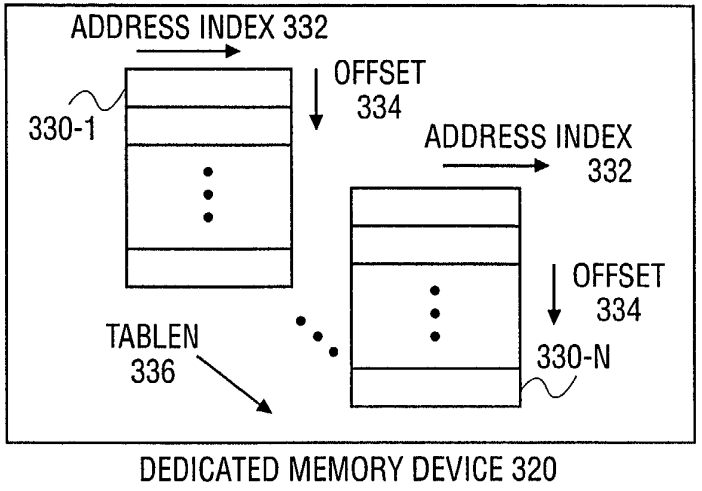

FIG. 6B

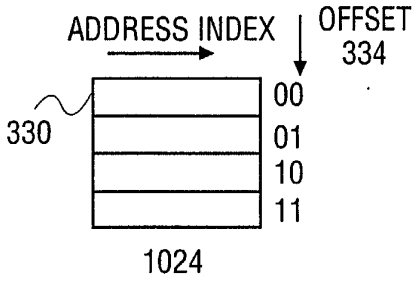

FIG. 6C

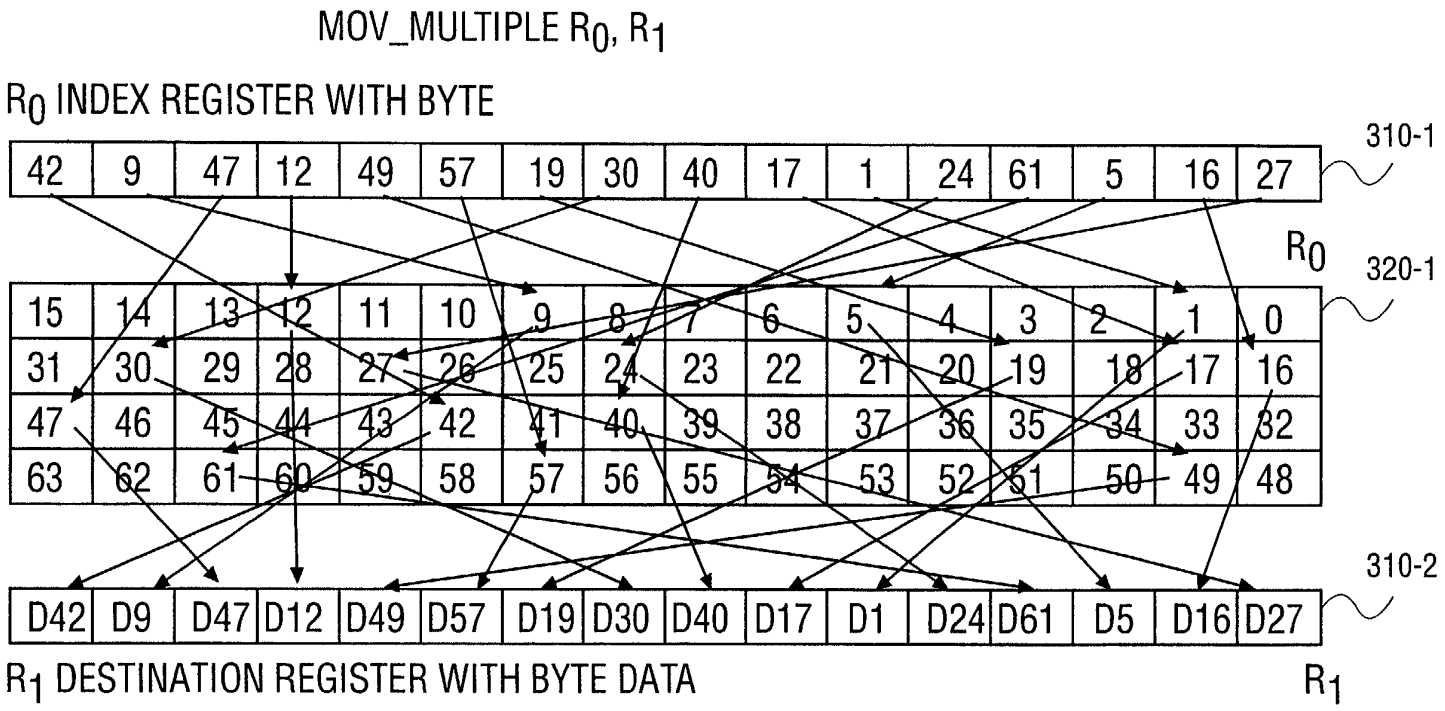

FIG. 7

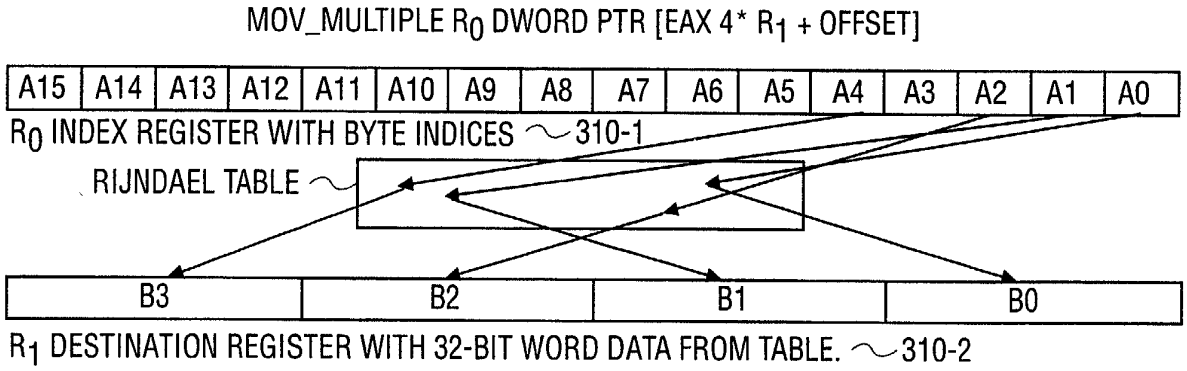

FIG. 8

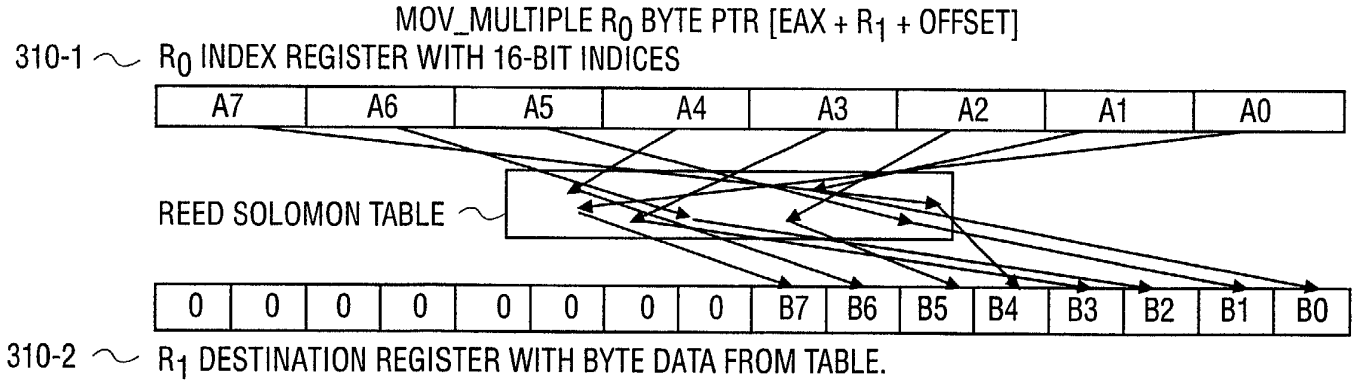

FIG. 9

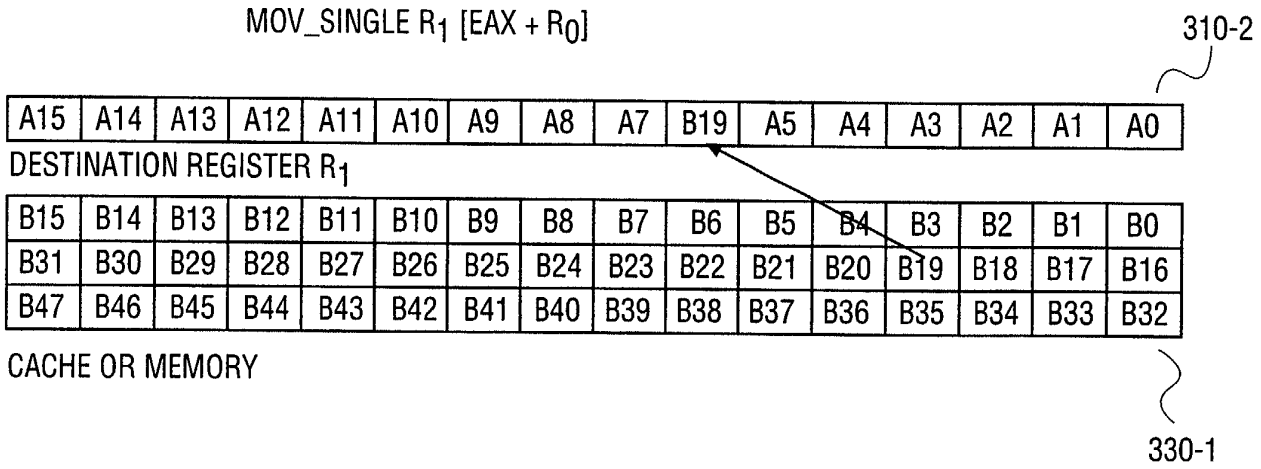

FIG. 10

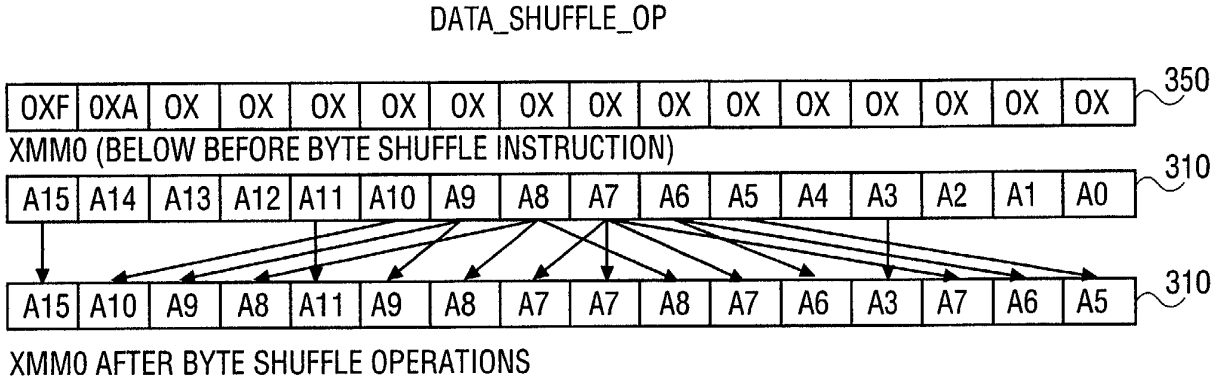

FIG. 11

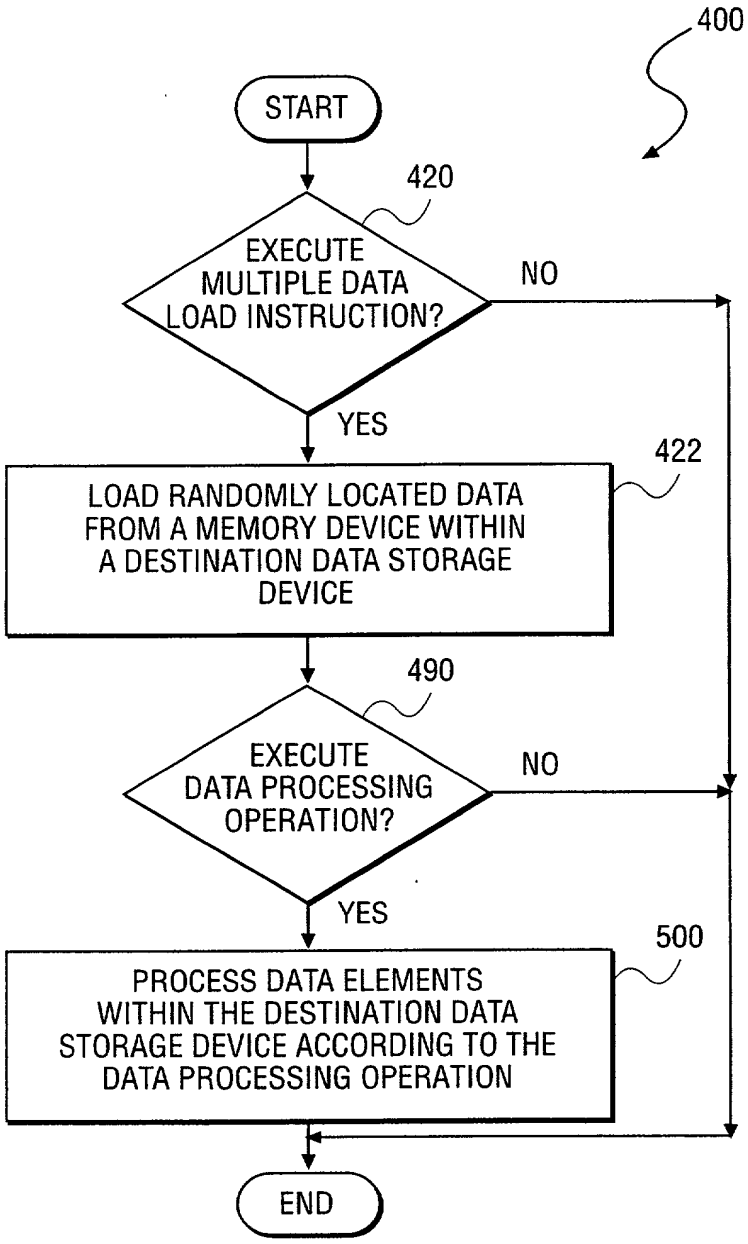
400
START
420
EXECUTE MULTIPLE DATA LOAD INSTRUCTION?
NO
YES
422
LOAD RANDOMLY LOCATED DATA FROM A MEMORY DEVICE WITHIN A DESTINATION DATA STORAGE DEVICE
490
EXECUTE DATA PROCESSING OPERATION?
NO
YES
500
PROCESS DATA ELEMENTS WITHIN THE DESTINATION DATA STORAGE DEVICE ACCORDING TO THE DATA PROCESSING OPERATION
END

FIG. 12

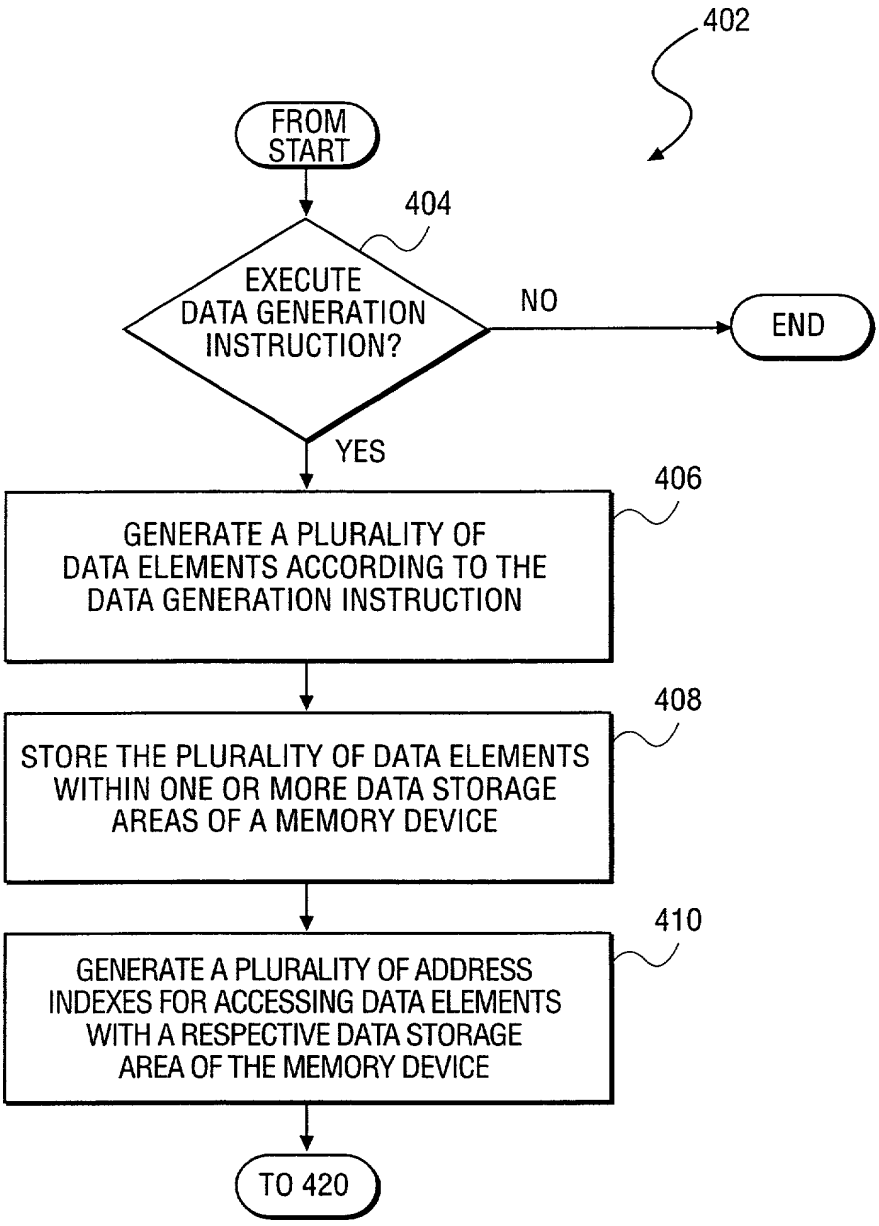
402
FROM START
404
EXECUTE DATA GENERATION INSTRUCTION?
NO
END
YES
406
GENERATE A PLURALITY OF DATA ELEMENTS ACCORDING TO THE DATA GENERATION INSTRUCTION
408
STORE THE PLURALITY OF DATA ELEMENTS WITHIN ONE OR MORE DATA STORAGE AREAS OF A MEMORY DEVICE
410
GENERATE A PLURALITY OF ADDRESS INDEXES FOR ACCESSING DATA ELEMENTS WITH A RESPECTIVE DATA STORAGE AREA OF THE MEMORY DEVICE
TO 420

FIG. 13

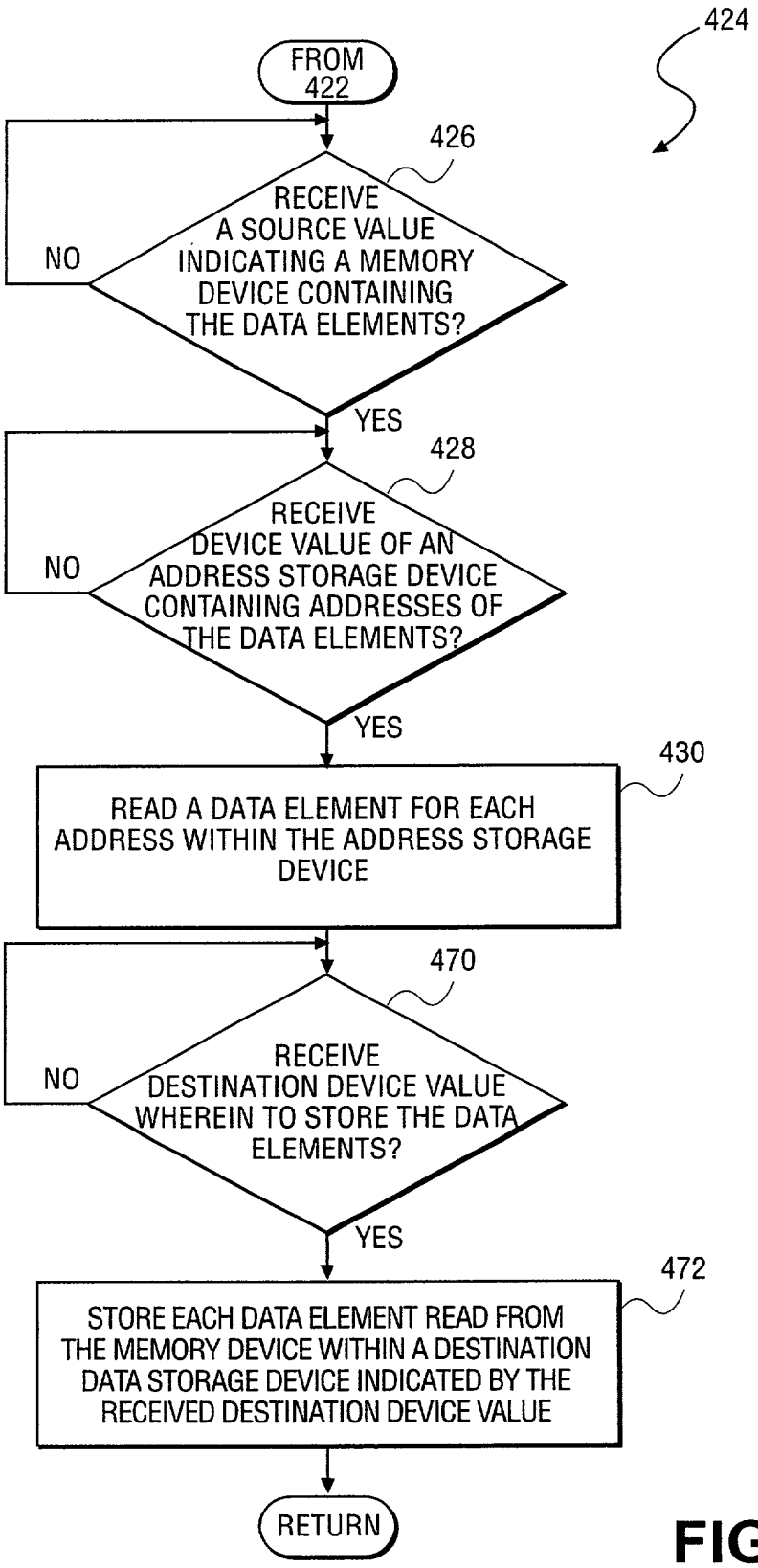
424
FROM 422
426
RECEIVE A SOURCE VALUE INDICATING A MEMORY DEVICE CONTAINING THE DATA ELEMENTS?
NO
YES
428
RECEIVE DEVICE VALUE OF AN ADDRESS STORAGE DEVICE CONTAINING ADDRESSES OF THE DATA ELEMENTS?
NO
YES
430
READ A DATA ELEMENT FOR EACH ADDRESS WITHIN THE ADDRESS STORAGE DEVICE
470
RECEIVE DESTINATION DEVICE VALUE WHEREIN TO STORE THE DATA ELEMENTS?
NO
YES
472
STORE EACH DATA ELEMENT READ FROM THE MEMORY DEVICE WITHIN A DESTINATION DATA STORAGE DEVICE INDICATED BY THE RECEIVED DESTINATION DEVICE VALUE
RETURN

FIG. 14

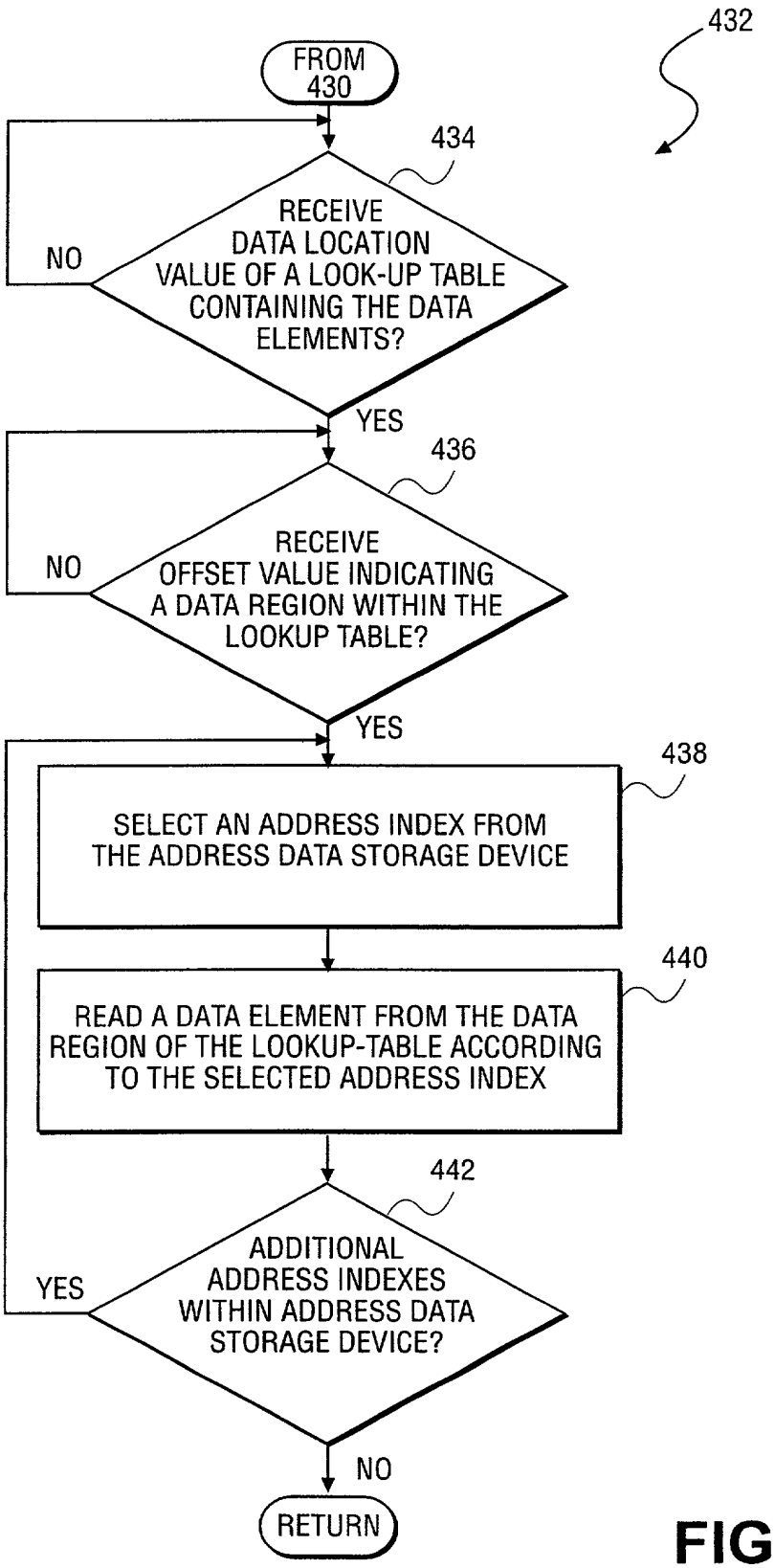
432
FROM 430
434
RECEIVE DATA LOCATION VALUE OF A LOOK-UP TABLE CONTAINING THE DATA ELEMENTS?
NO
YES
436
RECEIVE OFFSET VALUE INDICATING A DATA REGION WITHIN THE LOOKUP TABLE?
NO
YES
438
SELECT AN ADDRESS INDEX FROM THE ADDRESS DATA STORAGE DEVICE
440
READ A DATA ELEMENT FROM THE DATA REGION OF THE LOOKUP-TABLE ACCORDING TO THE SELECTED ADDRESS INDEX
442
ADDITIONAL ADDRESS INDEXES WITHIN ADDRESS DATA STORAGE DEVICE?
YES
NO
RETURN

FIG. 15

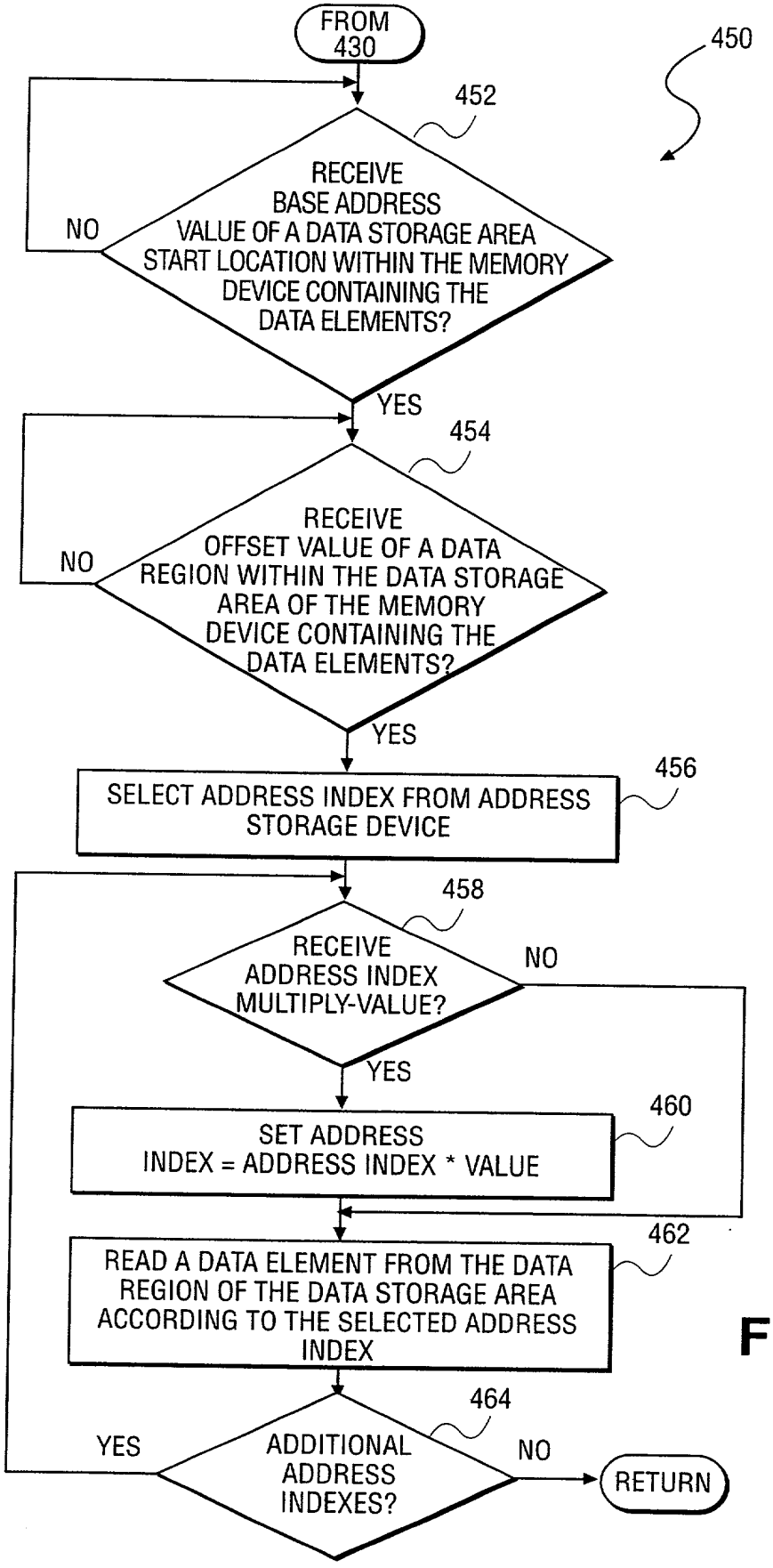
FROM 430
450
452
RECEIVE BASE ADDRESS VALUE OF A DATA STORAGE AREA START LOCATION WITHIN THE MEMORY DEVICE CONTAINING THE DATA ELEMENTS?
NO
YES
454
RECEIVE OFFSET VALUE OF A DATA REGION WITHIN THE DATA STORAGE AREA OF THE MEMORY DEVICE CONTAINING THE DATA ELEMENTS?
NO
YES
456
SELECT ADDRESS INDEX FROM ADDRESS STORAGE DEVICE
458
RECEIVE ADDRESS INDEX MULTIPLY-VALUE?
NO
YES
460
SET ADDRESS INDEX = ADDRESS INDEX * VALUE
462
READ A DATA ELEMENT FROM THE DATA REGION OF THE DATA STORAGE AREA ACCORDING TO THE SELECTED ADDRESS INDEX
464
ADDITIONAL ADDRESS INDEXES?
YES
NO
RETURN

FIG. 16

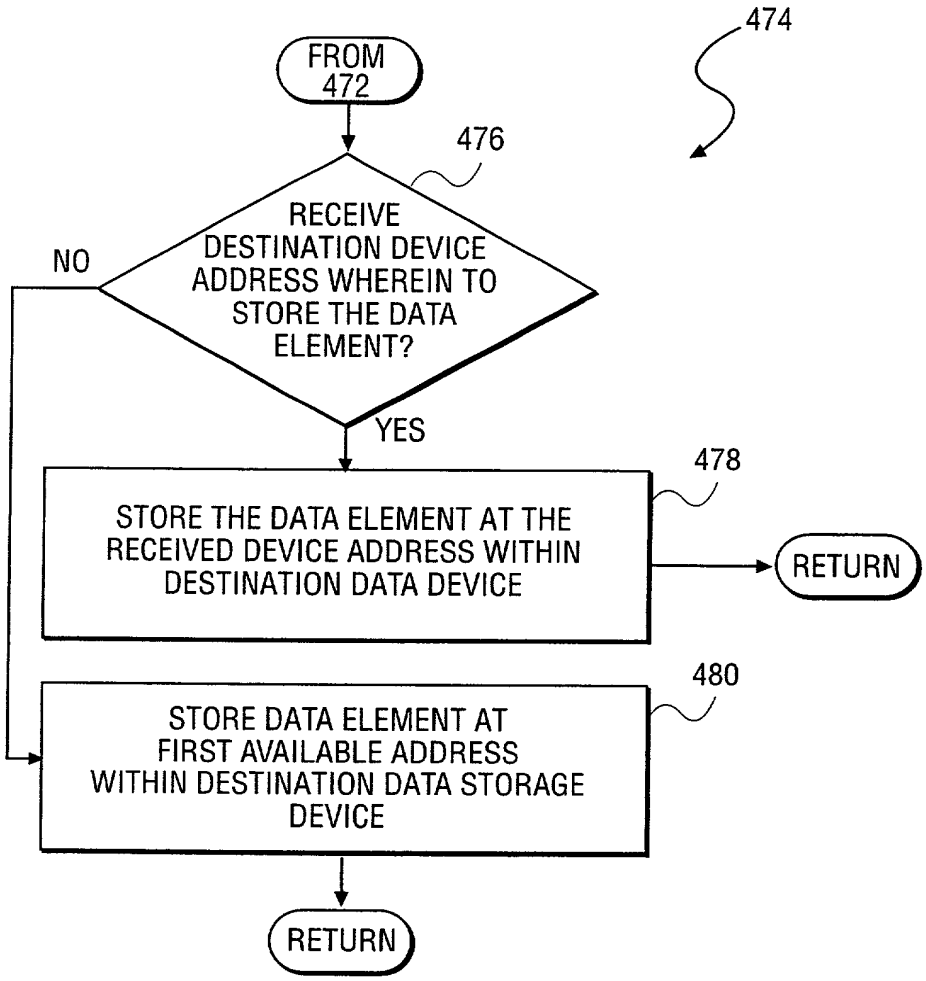
474
FROM 472
476
RECEIVE DESTINATION DEVICE ADDRESS WHEREIN TO STORE THE DATA ELEMENT?
NO
YES
478
STORE THE DATA ELEMENT AT THE RECEIVED DEVICE ADDRESS WITHIN DESTINATION DATA DEVICE
RETURN
480
STORE DATA ELEMENT AT FIRST AVAILABLE ADDRESS WITHIN DESTINATION DATA STORAGE DEVICE
RETURN

FIG. 17

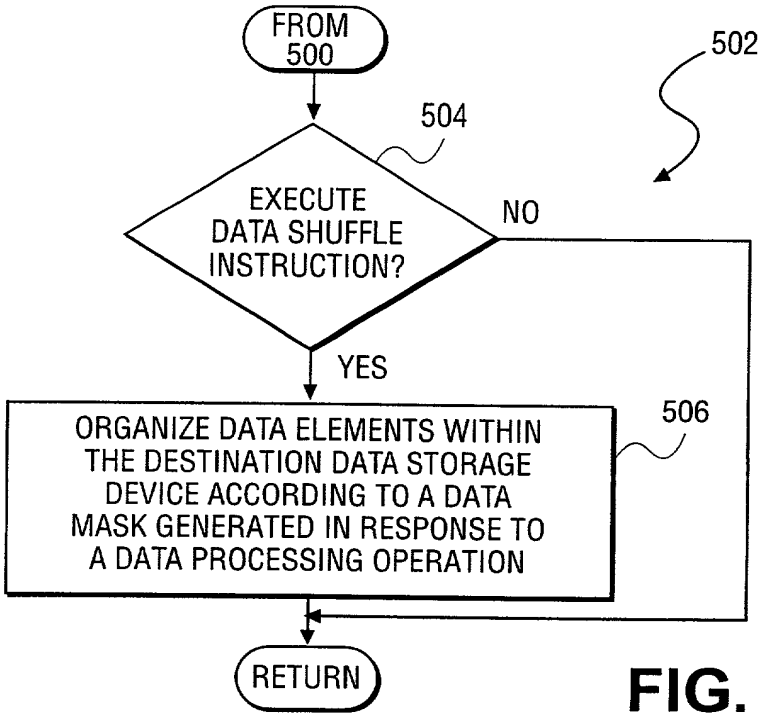
FROM 500
502
504
EXECUTE DATA SHUFFLE INSTRUCTION?
NO
YES
ORGANIZE DATA ELEMENTS WITHIN THE DESTINATION DATA STORAGE DEVICE ACCORDING TO A DATA MASK GENERATED IN RESPONSE TO A DATA PROCESSING OPERATION
506
RETURN

FIG. 18

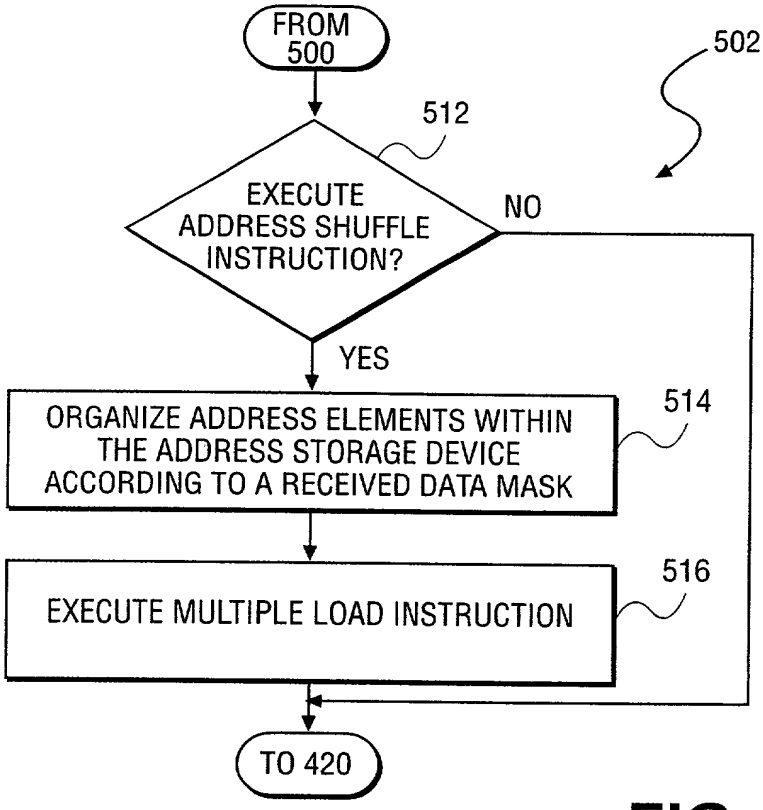
FROM 500
502
512
EXECUTE ADDRESS SHUFFLE INSTRUCTION?
NO
YES
ORGANIZE ADDRESS ELEMENTS WITHIN THE ADDRESS STORAGE DEVICE ACCORDING TO A RECEIVED DATA MASK
514
EXECUTE MULTIPLE LOAD INSTRUCTION
516
TO 420

FIG. 19